

CHALLENGES AND PROSPECTS OF SUCCESS IN DIAGNOSTIC IMAGING ENTREPRENEURSHIP IN HARARE, ZIMBABWE

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ABSTRACT:

The health industry is growing with its medical imaging, making radiology big business. With an increase in demand of radiographic services it presents opportunities for individuals to venture into private outpatient imaging centres for business. The aim of the study was to identify the challenges associated with the establishment and management of a private outpatient imaging centre in Harare, Zimbabwe and to assess the prospect of success in the business of private imaging centres.

The research design adopted for the study was a cross sectional survey using mixed methodologies. The target population were the proprietors of private imaging centres. Seventeen such departments were identified and included in the study. A questionnaire was administered to the proprietors of the businesses. The major findings from the study indicated that the main challenges faced by the proprietors were an unstable economic environment, finding and start up capital. Patient throughput was recorded as stable in 50% of the participating centres, 40% of the centres believed it was decreasing whilst 10% were of the opinion it was increasing. The conclusion drawn from the results were that despite the challenges proprietors encountered during the establishment of their centres and in the management of these centres there is prospect of success in diagnostic imaging entrepreneurship.

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INTRODUCTION

Diagnostic imaging involves the use of radiation in the study of the function and morphology of the human body in detail. The scope of diagnostic imaging has widened from conventional radiography, discovered in 1895 by Roentgen that employs the use of x-rays for imaging, to ultrasound that uses sound for imaging. There is a wide variety of imaging modalities that can now be employed for assessment of the human body. The available imaging modalities are discussed below:

Conventional radiography

Conventional radiography units pass x-rays through the patient's body and the x-rays are recorded on a film. As the x-rays pass through the body they are selectively attenuated as a result of the different densities of the tissues in the human body, the resulting image displays the structures within the patient's body. Often conventional radiography is used in conjunction with contrast media, chemicals injected or ingested within the patient to increase or decrease the density of specific anatomical structures to make them more visible for diagnostic purposes, for contrast studies.

Ultrasonography

Diagnostic ultrasound is a non invasive technique that uses high frequency sound waves. The frequency ranges used in medical ultrasound imaging range are 2 – 15 MHz. To create images the ultrasound machine relies on the generation of short bursts of sound waves transmitted into the body, and the detection of echoes from reflectors in front of it.

Computed Tomography (CT)

Computer Tomography (CT) generates images in trans-axial slices that are perpendicular to the axis of rotation of the X ray tube about the body and generally perpendicular to the cranio-caudal axis of the patient's body Roberts (2008). It creates cross sectional tomographic images of any body part. The patient is scanned by an X-ray tube rotating around the body and the detector assembly measures the radiation exiting the patient.

Magnetic Resonance Imaging

Magnetic resonance imaging (MRI) exploits the distinctive ways in which various atomic nuclei align themselves when subjected to an external magnetic field. A MRI unit applies such a field then transmits radio waves causing a release of energy which is used to map the morphology and/or function of the body.

Nuclear Medicine

Unlike other imaging modalities nuclear medicine uses the patient's body as the radiation source. Radio-nuclides are ingested or injected into the patient and then a detector is used to form a visual image of these radioactive materials within the body.

The healthcare industry is growing, and with it medical imaging, making radiology big business worldwide. According to Yousem and Beauchamp (2001) in most academic hospitals the departments of radiology, pathology and surgery are the main revenue generators. According to markets and markets global diagnostic imaging industry is growing with numerous technology and investments emerging, with the market expected to grow at a rate of 4, 2% from 2011 to 2016. This is mainly due to the widening application of diagnostic imaging.

A study by Bindman (2011) found that the use of radiography and angiography/fluoroscopy was relatively stable between the years 1996 to 2010, radiography increased at a rate of 1.2% a year whilst angiography/fluoroscopy decreased by 1.3% annually. Advanced imaging modalities recorded the most significant rates, CT recorded an annual growth rate of 7.9%, MRI 10% and ultrasound 3.9% rate during the same period. According to Bindman, Miglioretti and Larson (2008) a dramatic rise in diagnostic imaging was observed between the years 1997 to 2006, this dramatic rise raises both costs and radiation exposure to patients. The increased demand for radiology services creates opportunities for individuals to venture into private outpatient imaging centres.

In Zimbabwe, radiology departments at most government hospitals are under equipped due to the economic depression experienced by the country in the first decade of the millennium. The inadequacies of the radiology departments in the public hospitals have incentivized private entrepreneurs to set up private radiology centers. This rapid proliferation of privately owned radiology departments has spawned many challenges, chief among them being viability and

growth. The current study investigates the challenges faced by these new enterprises and the potential for success.

RESEARCH OBJECTIVES

The objectives of the study were:

1. To identify challenges associated with establishing a private outpatient imaging centre in Zimbabwe.
2. To identify challenges associated with managing a private outpatient imaging centre.
3. To assess the proprietors' perceptions on profitability of their centres.
4. To assess patient through put at private outpatient imaging centres

RESEARCH DESIGN

A list of all registered radiology departments was obtained from the Radiation Protection Authority of Zimbabwe which is the statutory authority mandated to register and regulate the use of ionizing radiation sources in Zimbabwe. A questionnaire containing both closed ended and open ended items was designed and hand delivered to the proprietors of each centre. A sample of the questionnaire is presented below.

Sample Questionnaire

1. Demographic information (please tick or fill in where appropriate)

Gender

Male

Female

Age (optional)

Below 30

30-40

41-50

51-60

61-65

65+

Qualification.....

.....

2. What problems/ challenges, if any, were experienced during establishment of the centre?

Factor	
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Unstable economic environment	
Start Up Capital (access to loans and grants)	
Finding appropriate personnel	

Others(specify)

.....

.....

.....

3. What challenges, if any, are encountered in managing this establishment

Factor	
Finding and retaining appropriate personnel	
Equipment breakdown	
Non availability of maintenance personnel	
Unstable economic environment	
Financial constraints	

Others (specify)

.....

.....

.....

4. In your opinion, how would you rate patient trends at this centre

Increasing	Stable	Decreasing

5. How would you rate profitability of this centre

Very profitable	
Profitable	
Fairly profitable	
Not profitable	

6. On a scale of 0 to 5 with representing “Not Important at All” and 5 representing “Very Important” how do you rate the importance of the following factors to the success of your business?

	Not Important At All (0)	1	2	3	4	Very Important (5)
Skilled personnel						
Customer care						
Marketing knowledge and skills						
Forecasting/planning skills						
Financial management and book keeping skills						

RESULTS

A total of seventeen private diagnostic imaging centres were approached to participate in the study, 13 completed and usable questionnaires were returned. This translated to a response rate of 83.3%. The response rate was high, according to Saunders, Lewis and Thornhill (2011) the response rate of a self-administered questionnaire is variable with 30% being reasonable. Forty percent of the respondents were female while 60% were male. The majority of the respondents were below the age of thirty. Ten percent of the participants were in the age band thirty to forty (30 – 40), 30% between the age ranges of forty one to fifty (41 – 50) and 10% in the range of sixty one to sixty five (61 – 65). Ten of the participants indicated that they hold either a degree or a diploma in radiography. Hence they can be classified as radiographers. The remaining three participants indicated that they either were a qualified nurse, held an x-ray operator certificate or technician in medical equipment and diagnostics.

SERVICES OFFERED

Different imaging modalities are on offer. Twelve out of 17 of the centres provided ultrasound services only while 5 offered x-ray services and ultrasound. None of the participating centres offered fluoroscopy, CT scan or MRI.

CHALLENGES ENCOUNTERED DURING ESTABLISHMENT

Challenges	Number of respondents
Unstable economic environment	(60%)
Start Up Capital	(50%)
Finding appropriate personnel	(30%)
Poor infrastructure	(20%)

The mostly commonly cited challenges were the unstable economic environment (60%) and poor financial support system (50%).

CHALLENGES IN MANAGING THE BUSINESS

Challenge	Number of respondents
Finding and retaining appropriate personnel	(60%)
Equipment failure/breakdown	(10%)
Non availability of maintenance personnel	(20%)
Unstable economic environment	(50%)
Financial constraints	(50%)

The most common challenge cited is managing the enterprises were finding and retaining appropriate personnel (60%), financial constraints (50%) and an unstable economic environment (50%).

FACTORS AFFECTING PERFORMANCE**Patient Trends**

Up to 50% of the participants are of the opinion that their patient trends at their centres are stable. 40% are of the opinion that the patient trends are decreasing whilst 10% believe patient trends are increasing.

Relative Importance of Success Factors

The scores for each factor were summed up to obtain the relative importance of each factor. Customer care was rated as the most important followed by skilled manpower. Forecasting and planning skills was rated third followed marketing knowledge while financial management and bookkeeping skills was ranked least important among the factors.

Perception on profitability

Forty percent of the respondents rated their businesses as fairly profitable; 30% rated their businesses as profitable while 10% considered them very profitable. Twenty percent were of the view that their businesses were operating at a loss.

DISCUSSION

The findings from the data collected indicate that each of the participants faced at least one challenge when starting their centres. Each factor had a variable response rate in relation to it being a challenge the participant encountered. The most significant challenge encountered was an unstable economic environment with a response of 60%, poor financial support systems had 50% of the responses, finding appropriate personnel had 30% and poor infrastructure had 20% frequency.

A similar study by Okaro and Ohwagu (2010) in Nigeria identified similar challenges faced by the proprietors of private imaging centres in starting their centres however the frequencies for each challenge was different, in their study the challenge with the highest frequency was poor infrastructure with a frequency of 66.7%, unstable economic environment and poor financial support systems had 55.6% and finding appropriate personnel had 22.2%.

The different socio-economic and political environments under which both studies were undertaken could be a likely cause of the variance in the challenges experienced by the proprietors of the two countries. Zimbabwe suffered an economic recession over the past decade while Nigeria was fairly stable. Low (2010) cited economic uncertainty as one of the top challenges that entrepreneurs face. In an unstable economy it is difficult to start a business. An unstable economic environment hinders the ability to plan ahead, and also limits the potential amount of investment in any industry. Resources are needed in the start up of any business (Du Toit et al, 2008). Starting a radiographic practice requires funding to purchase the appropriate equipment, which unfortunately is expensive, with a poor finance system there is limited access to bank loans as a result funding has to be sourced elsewhere to purchase the necessary equipment.

Finding appropriate personnel was identified as one of the least challenge experienced by the proprietors of private diagnostic imaging centres, this can be attributed to the number of graduate radiographers that enter the market each year and the limited job placements in the public sector, making the pool of radiographers vast and the selection of potential employees wide.

The underlying management challenges affecting the participants identified were finding and retaining appropriate personnel, an unstable economic environment and financial constraints. Most of the participants who identified finding and retaining appropriate personnel as challenge also listed skilled personnel as either an important or most important function that contributes to the performance of their centres. Low (2010) identified talent as one of the top challenges faced by entrepreneurs. Talent refers to finding and retaining qualified workers. The importance of a qualified work force in an organization cannot be over emphasized. Unstable economic environment and financial constraints limit the budget and affect the running cost of the business.

The findings from the data indicate the majority of participants rate their centres as fairly profitable to very profitable. This finding is also supported by the fact that most of the centers reported stable and increasing patient throughput. Radiology is a growth industry, Yousem and Beauchamp (2001) state that the departments of radiology, surgery and pathology are the main income generators at hospitals. The majority of the participants in this sample were running ultrasound departments which are associated with low start up capital and few operating expenses.

The majority of participants who rated their centres as either fairly profitable or greater also indicated that business plan, business opportunities and training in business school as important aspects for the success of their venture. According to Du Toit et al (2008) the success of any new venture is dependant largely on the strength of the entrepreneurial process of which the business plan and opportunities identified are a vital part of.

CONCLUSION

The establishment and management of private outpatient imaging centres is characterized by challenges, regardless of the challenges present the majority of owners and managers of these centres believe they are fairly profitable ventures. Apart from being profitable ventures outpatient imaging centres provide a valuable service to the general public as well as vital employment opportunities to qualified radiographers.

REFERENCES

1. Bindman, 2012. *Significant increase in use of CT, MRI and PET imaging over the last two decades*. [online]. Available at <http://www.new medical.net/news/20120613/title.aspx>. [Accessed Date July 2012]
2. Du Toit et al., 2007. *Introduction to Business Management*. 7th Edition. Cape Town. Oxford University Press Southern Africa
3. Low R B, 2010. *Top challenges facing small businesses and entrepreneurs*. [Online]. Available at <http://www.ezinearticles.com/?Top-Challenges-Facing-Small-Businesses-and-Entrepreneurs&id=4165235> [Accessed Date 19 June 2012]
4. Okaro AO, Ohwagu CC., 2010. *Problems and Prospects of Entrepreneurship in Medical Radiography Practice in Enugu Nigeria*. European Journal of Scientific Research. Vol 41:3
5. Smith-Bindman R, Miglioretti D L and Larson., 2008. Rising use of diagnostic imaging in a large integrated health system. [online]. Available at <http://www.content.healthaffairs.org/content/27/6/1491.short> [Accessed Date 16 February 2013]
6. Yousem, DM Beauchamp, NJ. 2008. *Radiology Business Practice: How to Succeed*. Philadelphia: Saunders.